**Ch. 8 Classwork NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. At a local automobile inspection station it was found that in a random sample 16% of cars had 1 defective tire, 6% had 2 defective tires, 4% had 3 defective tires, and 20% had 4 defective tires. The rest had 0 defective tires.
   1. Create the probability model for the number of defective tires.
   2. What is the probability that a car has 2 or 4 defective tires?
   3. What is the probability that a car has at least 2 defective tires?
   4. What is the probability that a car has no more than 2 defective tires?
   5. What is the **expected** value?
   6. If 30 cars were inspected what is the **expected** number of defective tires found?
2. You are playing a game. It costs $3 to play. You get to draw a card out of a deck of cards. You have the following possible outcomes:

* If you draw the ace of spades, you win $10 If you draw the any other spade, you win $5
* If you draw a red face card, you win $7 If you draw the ace of hearts, you win $8
* If you draw the ace of diamonds, you win $3 If you draw any other card you win nothing
  1. Create a probability model for the game (use the GAIN)
  2. What is the expected gain of the game?
  3. What is the probability that you will gain some money?
  4. What is the probability that you will gain more than $5?
  5. What is the probability that you will gain less than $6?

1. The chance that a NYC resident supports the current mayor is 41%. We will select 4 random NYC residents. Assume each person is independent of the others.
   1. Using a tree diagram, create a probability model for the number of NYC residents who support the mayor in a sample of 4.
   2. What is the probability that at least 2 of the people selected support the mayor?
   3. What is the probability that more than 2 people support the mayor?
   4. What is the probability that 1 or less people support the mayor?
   5. What is the probability that at least 1 but less than 4 people support the mayor?
   6. What is the expected number of people who support the mayor in a sample of 4?